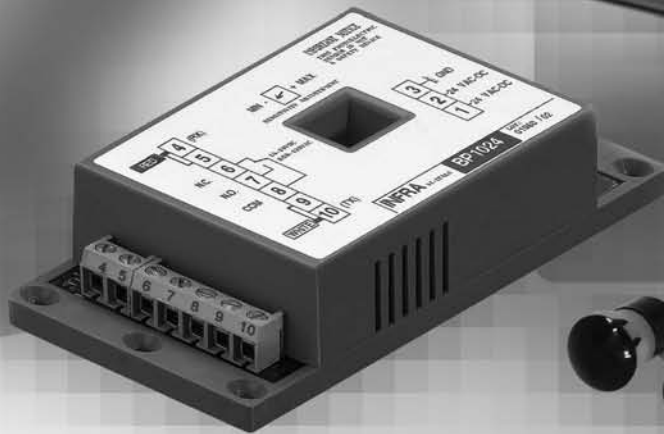


ELEVATORS





CROSS BEAMS LIGHT CURTAINS

FOR ELEVATORS AND AUTOMATIC DOORS WIDE RANGE OF SIZE UP TO 2m AND 94 CROSS BEAMS

- Resolution from 30 mm up to 60 mm
- Protection degree IP65
- External control unit not needed
- Conform to EN81-70 - EN954-1 (cat. 2)

BPCX Series



IDENTIFICATION CODE

BPCX **1** **A** **04** **A** **K** ⁽³⁾ ⁽⁵⁾ ⁽⁶⁾

BPCX SERIES

SOLID STATE OUTPUT

SOLID STATE + RELAY OUTPUT

RELAY OUTPUT

PNP NO + NPN NC OUTPUT

NPN NC + NPN NO OUTPUT

4 LED (10 cross beams)

8 LED (22 cross beams)

12 LED (34 cross beams)

16 LED (46 cross beams)

24 LED (70 cross beams)

32 LED (94 cross beams)

h = 589 mm

h = 1053 mm

h = 1517 mm

h = 1981 mm

M8 CONNECTOR OUTPUT 4 POLES (K2)

- (2) A and B must be specified only for options 1 and 3.
 (3) Option 1 e 5 available only with M8 4 poles connector.
 (4) Option 3 available only with 5 m PUR cable.
 (5) When used with K connector output, max.tension ratings on the relay are 60 VAC or 75 VDC.
 (6) Connector versions are supplied with n. 2 K2F90V5R.

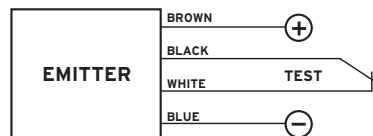
AVAILABLE	RECEIVER	EMITTER
NOMINAL SWITCHING DISTANCE (Sn)	4 m	
TOLERANCE	+10/-10%Sn	
HYSTERESIS	10%	
OPTICAL SYNCHRONISM	Present	
EMISSION	-	Infrared (875 nm)
NOMINAL VOLTAGE	12-24 V AC/DC (-15/+10%)	
RESIDUAL RIPPLE	≤10%	
OUTPUT	Relay (10 ⁸ ops. min.) or NPN+PNP	-
CONTACT	NO or NC	-
MAX. OUTPUT CURRENT	1A-30VDC MAX 220VDC (30WDC/62,5VAC) 200 mA (SOLID STATE)	-
ABSORPTION AT 30 V DC	70 mA	90 mA
VOLTAGE DROP (Sensor ON)	≤ 1,8V (I = 100mA)	-
RED LED	Output indicator	Test indicator
YELLOW LED	Supply indicator	
SENSITIVITY ADJUSTEMENT	-	Trimmer 1 turn
SWITCHING FREQUENCY	10 Hz	
RESPONSE TIME	See selection table	
START UP DELAY	3 s	
SHORT CIRCUIT PROTECTION	Present (self resetting)	-
ELECTRIC PROTECTIONS	Against polarity reversal - inductive loads	
TEMPERATURE LIMITS	-10 ÷ +60 °C	
LIGHT IMMUNITY	> 10.000 Lux ⁽¹⁾	
PROTECTION DEGREE	IP 65	
CABLE LENGTH (only for option 3)	5 m Pur hight flex	
CABLE SECTION (only for option 3)	5 x 0,35 mm ²	4 x 0,35 mm ²
HOUSING MATERIAL	Aluminium	
WEIGHT APPROX.	0,5 m = 2 Kg - 1 m = 2,5 Kg - 1,5 m = 3 Kg - 2 m = 4 Kg	

(1) Determined with halogen tungsten lamp 3000 °K.

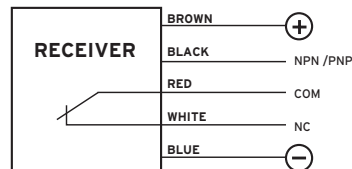
SELECTION TABLE

Order code	Relay	Solid state	Product L. mm	LED no.	Risp. time ms	Resolut. mm	Profile h. mm
BPCX 1 A 08 A K	1 B 08 A K		589,00	08	25,00	30,00	561,50
	3 A 08 A						
	3 B 08 A						
	5 08 A K						
	5 08 A K						
BPCX 1 A 04 A K	1 B 04 A K		1053,00	04	12,50	60,00	1025,50
	3 A 04 A						
	3 B 04 A						
	5 04 A K						
	5 04 A K						
BPCX 1 A 16 B K	1 B 16 B K		1517,00	16	50,00	30,00	1489,50
	3 A 16 B						
	3 B 16 B						
	5 16 B K						
	5 16 B K						
BPCX 1 A 08 B K	1 B 08 B K		1981,00	08	25,00	60,00	1953,50
	3 A 08 B						
	3 B 08 B						
	5 08 B K						
	5 08 B K						
BPCX 1 A 24 C K	1 B 24 C K		1981,00	24	75,00	30,00	1953,50
	3 A 24 C						
	3 B 24 C						
	5 24 C K						
	5 24 C K						
BPCX 1 A 12 C K	1 B 12 C K		1981,00	12	37,50	60,00	1953,50
	3 A 12 C						
	3 B 12 C						
	5 12 C K						
	5 12 C K						
BPCX 1 A 32 D K	1 B 32 D K		1981,00	32	100,00	30,00	1953,50
	3 A 32 D						
	3 B 32 D						
	5 32 D K						
	5 32 D K						
BPCX 1 A 16 D K	1 B 16 D K		1981,00	16	50,00	60,00	1953,50
	3 A 16 D						
	3 B 16 D						
	5 16 D K						
	5 16 D K						

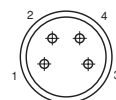
EMITTER OPTION 3 WIRING DIAGRAMS



RECEIVER OPTION 3 SOLID STATE + RELAY OUTPUT



CONNECTION WITH M8 CONNECTOR



View of quadrupole male connector

CONTACTS CONFIGURATION

Output	Contacts numbers			
	1	2	3	4
EMITTER	+	TEST	-	TEST
OPTION 1 SOLID STATE OUTPUT	+	-	-	NPN/PNP
OPTION 5 RELAY OUTPUT	+	NC	-	COM

CROSS BEAMS LIGHT CURTAINS

FOR ELEVATORS AND AUTOMATIC DOORS

WIDE RANGE OF SIZE UP TO 2m AND 94 CROSS BEAMS

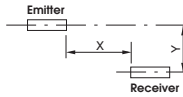
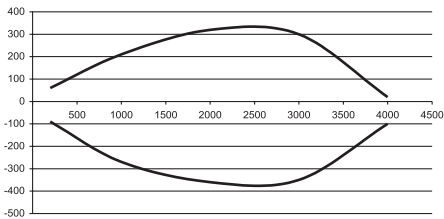
- Resolution from 30 mm up to 60 mm
- Protection degree IP65
- External control unit not needed
- Conform to EN81-70 - EN954-1 (cat. 2)



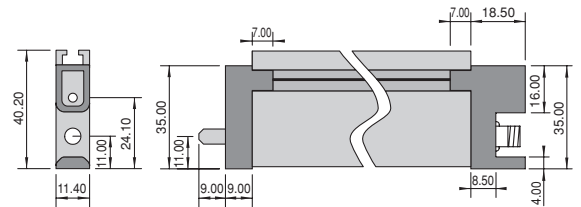
BPCX Series



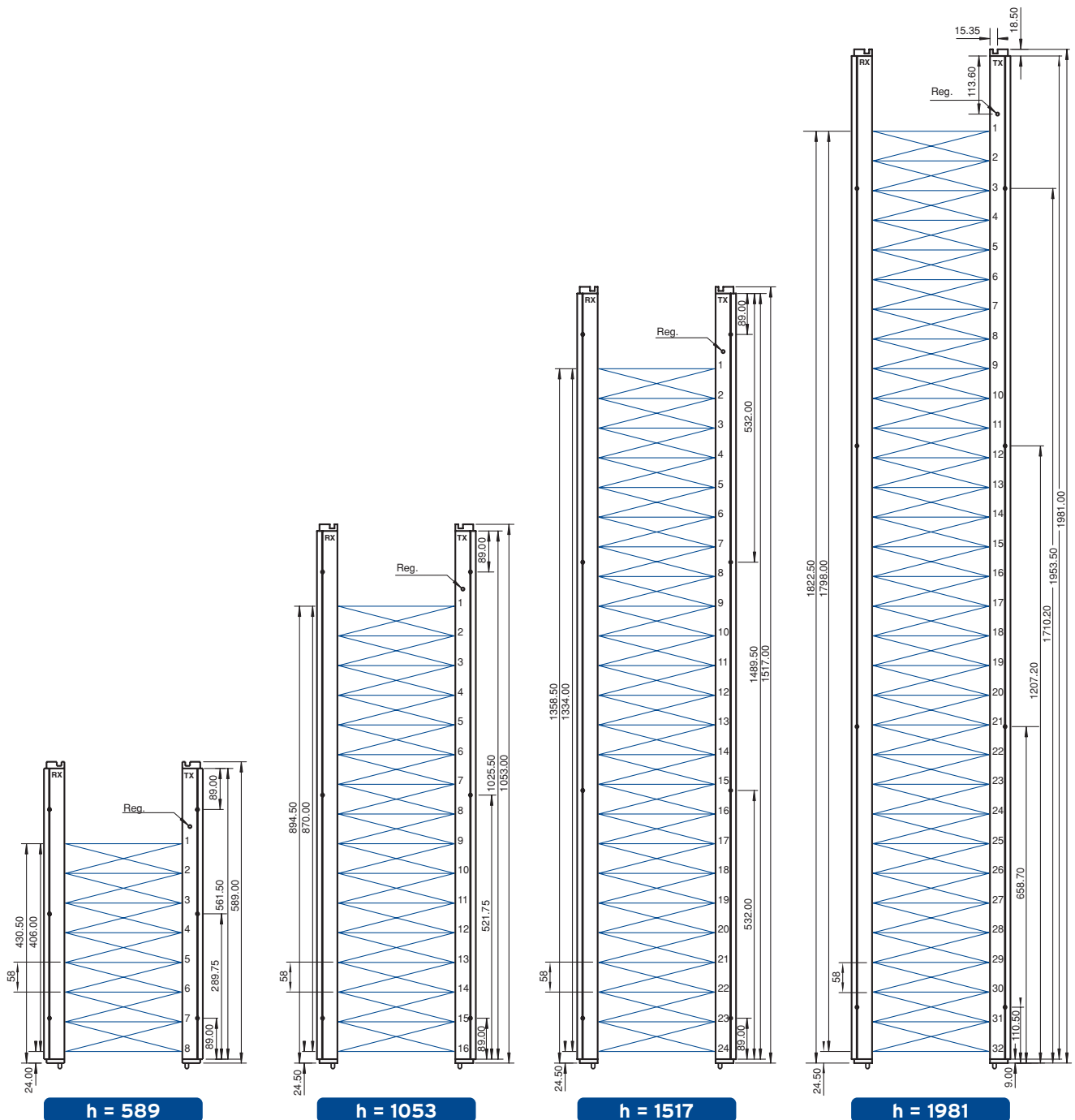
CHARACTERISTIC CURVES (mm)



ALUMINIUM PROFILE SECTIONS



DIMENSIONS (mm)



h = 589

h = 1053

h = 1517

h = 1981

Note: the drawings refer to the maximum resolution versions.

ELEVATORS

THRU BEAM PHOTOELECTRIC SENSORS



FOR ELEVATORS AND AUTOMATIC DOORS

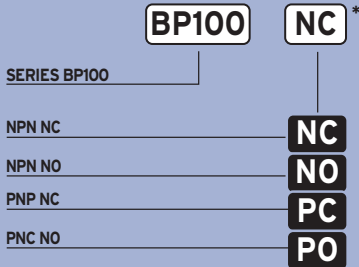
10÷30 V DC - NPN/PNP NO/NC OUTPUT

- Snap in emitter and receiver
- Fully amplified stand alone unit
- Selectable switching distance (6 or 12m)
- NPN/PNP NO/NC output
- Conforming to EN 12978 and EN 954-1

BP Series



IDENTIFICATION CODE

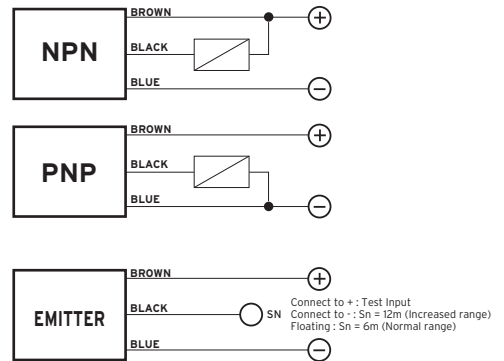


* One Beam 10 ÷ 30 V DC, TX + RX.

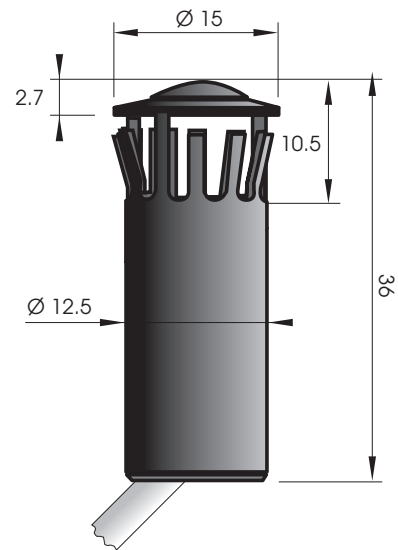
AVAILABLE	RECEIVER	EMITTER
NOMINAL SWITCHING DISTANCE (Sn)	6 ÷ 12 m (Selectable with different wiring)	
TOLERANCE	+10/-10%Sn	
EMISSION	Infrared (875nm)	
NOMINAL VOLTAGE	10 ÷ 30 VDC (-15/+10%)	
MAX. CURRENT OUTPUT	100 mA	
ABSORPTION	2.5 mA	20 mA
YELLOW LED	not present	
GREEN LED	not present	
SWITCHING FREQUENCY	100Hz	
START UP DELAY	≤200ms	
TEMPERATURE LIMITS	-20°C +60°C	
LIGHT IMMUNITY	> 50.000 Lux	
PROTECTION DEGREE	IP67	
CONNECTIONS	Black PVC Cable	Grey PVC Cable
CABLE LENGTH	5m	
CABLE SECTION	3 x 0.14 mm ²	
HOUSING MATERIAL	Body: ABS - Lenses: PMMA	
WEIGHT (Approximately)	75g	

(1) Determined with halogen tungsten lamp 3000 °K

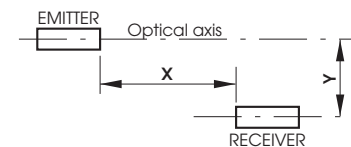
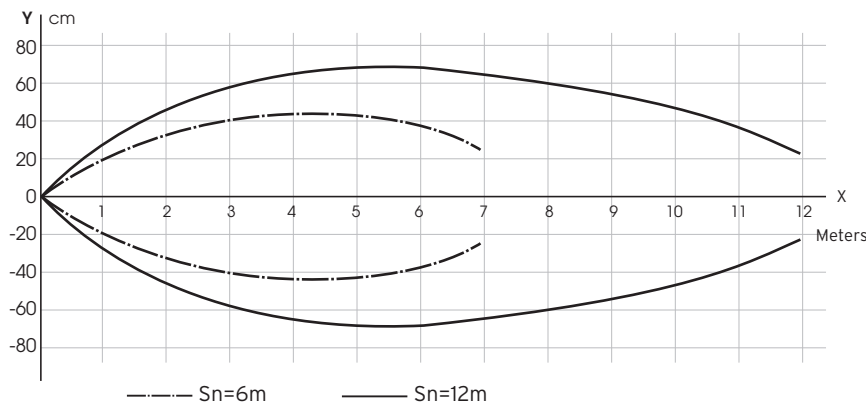
WIRING DIAGRAMS



DIMENSIONS (mm)



CHARACTERISTICS CURVE



ELEVATORS

THRU BEAM PHOTOELECTRIC SENSORS FOR ELEVATORS AND AUTOMATIC DOORS RELAY OUTPUT



- With separate amplifier
- 12-24 AC/DC input
- Conforming to EN 12978
- 1A relay SPDT
- Sensitivity adjustment
- 6 m long integral cables

BP Series



IDENTIFICATION CODE

BP **10**

SERIES BP

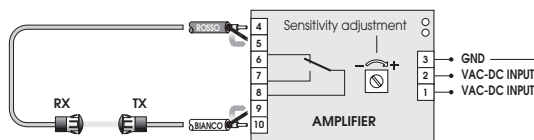
ONE BEAM 12÷24 VAC/DC

Note: Each package includes a pair of projectors.

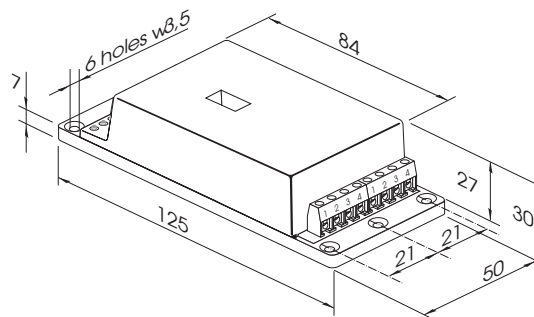
AVAILABLE	ONE BEAM SELECTION
NOMINAL SWITCHING DISTANCE (Sn)	10 m
TOLERANCE	+10/-10 %Sn
EMISSION	Infrared (875 nm)
NOMINAL VOLTAGE	12 ÷ 24 VAC DC (-15 / +10%)
FREQUENCY	50 ÷ 60 Hz
OUTPUT	2 Relay
N° OF OPERATIONS	(5x10 ⁶ mec. op. -3x10 ⁵ elect. op.)
MAX OUTPUT CURRENT	1A 24 VDC - 0.5A 120 VAC
ABSORPTION	70 mA
YELLOW LED	Output and activated thru beam indicator
GREEN LED	Supply indicator
SENSITIVITY ADJUSTMENT	Present
SWITCHING FREQUENCY	5 Hz
RESPONSE TIME	100 ms
START UP DELAY	≤ 300 ms
TEMPERATURE LIMITS	-20 ÷ +60°C
LIGHT IMMUNITY	5000 Lux ⁽¹⁾
PROTECTION DEGREE Amplifiers	IP 50
PROTECTION DEGREE Projectors	IP 65
CONNECTIONS	with clamps
HOUSING MATERIAL Amplifiers	ABS
HOUSING MATERIAL Projectors	Body - Lenses: methacrylate
WEIGHT (Approximately)	300 g

⁽¹⁾ Determined with halogen tungsten lamp 3000 °K.

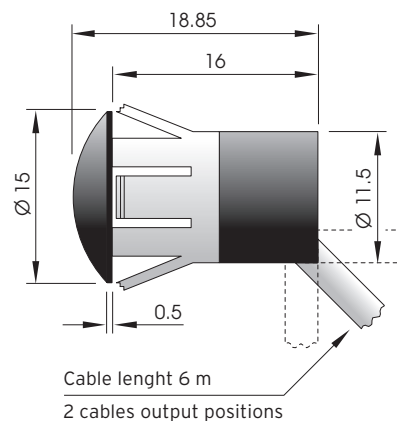
WIRING DIAGRAMS



AMPLIFIER DIMENSIONS (mm)



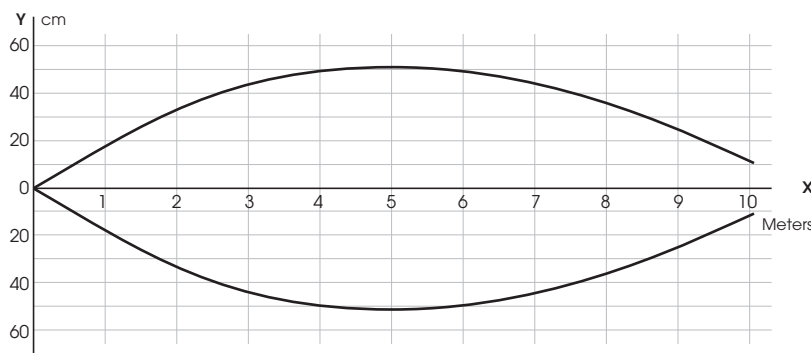
PROJECTOR DIMENSIONS (mm)



IMPORTANT WARNING

The thru beam photoelectric sensor can be used as a sensor to detect the presence of an obstacle if the sensing beam gets interrupted. In no case this device can substituted the obligatory safety devices that must be applied on all dangerous equipments.

CHARACTERISTICS CURVE



THRU BEAM PHOTOELECTRIC SENSORS FOR ELEVATORS AND AUTOMATIC DOORS RELAY OUTPUT

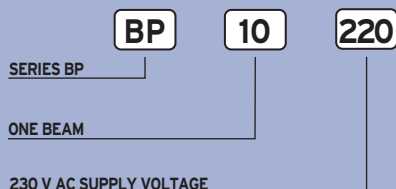


- With separate amplifier
- 230 V AC input
- 5 Hz frequency/response
- 8 A relay SPDT
- Sensitivity adjustment
- 6 m long integral cables

BP Series



IDENTIFICATION CODE

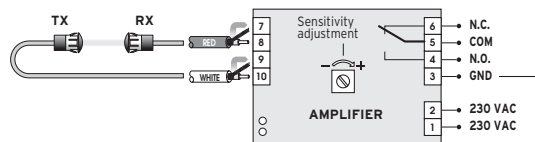


Note: Each package includes a pair of projectors.

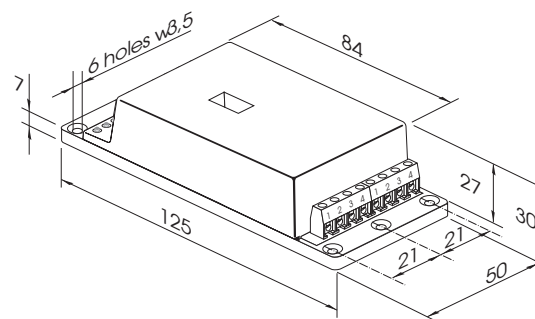
AVAILABLE	ONE BEAM SELECTION
NOMINAL SWITCHING DISTANCE (Sn)	10 m
TOLERANCE	+10/-10 %Sn
EMISSION	Infrared (875 nm)
NOMINAL VOLTAGE	230 V AC (-15 / +10%)
FREQUENCY	50 ÷ 60 Hz
OUTPUT	Relay
N° OF OPERATIONS	Relay (5x10 ⁷ mec. op. -1x10 ⁵ elect. op.)
MAX OUTPUT CURRENT	8A 250 VAC
ABSORPTION	17 mA
YELLOW LED	Output and activated thru beam indicator
GREEN LED	Supply indicator
SENSITIVITY ADJUSTMENT	Present
SWITCHING FREQUENCY	5 Hz
RESPONSE TIME	100 ms
START UP DELAY	≤ 300 ms
TEMPERATURE LIMITS	-20 ÷ +60°C
LIGHT IMMUNITY	5000 Lux ⁽¹⁾
PROTECTION DEGREE Amplifiers	IP 50
PROTECTION DEGREE Projectors	IP 65
CONNECTIONS	with clamps
HOUSING MATERIAL Amplifiers	ABS
HOUSING MATERIAL Projectors	Body - Lenses: methacrylate
WEIGHT (Approximately)	350 g

⁽¹⁾ Determined with halogen tungsten lamp 3000 °K.

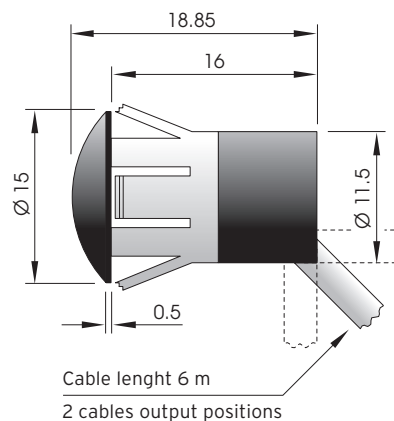
WIRING DIAGRAMS



AMPLIFIER DIMENSIONS (mm)



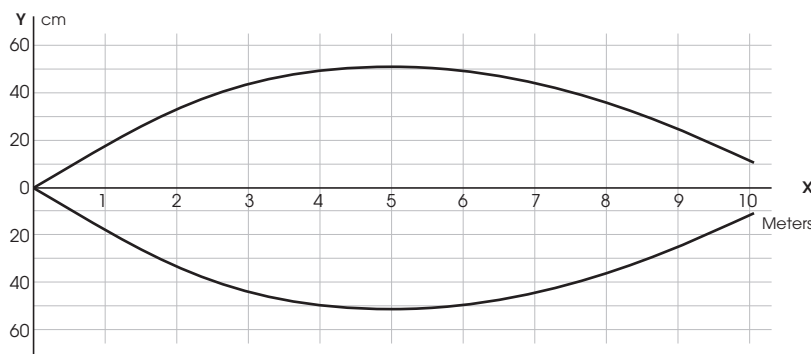
PROJECTOR DIMENSIONS (mm)



IMPORTANT WARNING

The thru beam photoelectric sensor can be used as a sensor to detect the presence of an obstacle if the sensing beam gets interrupted. In no case this device can substituted the obligatory safety devices that must be applied on all dangerous equipments.

CHARACTERISTICS CURVE



THRU BEAM PHOTOELECTRIC SENSORS FOR ELEVATORS AND AUTOMATIC DOORS WITH TIME RELAY OUTPUT DOUBLE BEAM

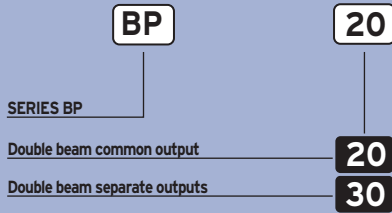


BP Series



- Single or dual channel
- Conforming to EN 12978
- 1 sec OFF delay timer, selectable
- 12-24 V AC/DC input
- Sensitivity adjustment
- 6 m long integral cables

IDENTIFICATION CODE



Note: Each package includes a pair of projectors.

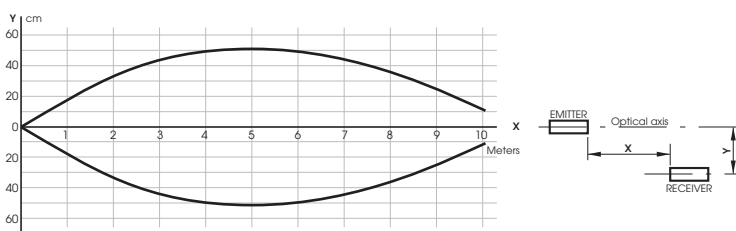
AVAILABLE	DOUBLE BEAM SELECTION
NOMINAL SWITCHING DISTANCE (Sn)	0.3 ÷ 10 m
TOLERANCE	+10/-10 %Sn
EMISSION	Infrared (875 nm)
NOMINAL VOLTAGE	12 ÷ 24 V AC DC ± (-15 / +10%)
FREQUENCY	50 ÷ 60 Hz
OUTPUT	2 Relay
N° OF OPERATIONS	Mec. = 5x10 ⁶ ops min. - Elect. = 3x10 ⁸ ops min; (1A 28VDC) 1x10 ⁸ ops min. (0.5A 120VAC)
MAX OUTPUT CURRENT	1A 28 VDC - 0.5A 120 VAC (28W 60V A)
ABSORPTION	80 mA
YELLOW LED	Output and activated thru beam indicator
GREEN LED	Supply indicator
SWITCHING FREQUENCY	5 Hz
START UP DELAY	≤ 300 ms
TEMPERATURE LIMITS	-20 ÷ +60°C
LIGHT IMMUNITY	> 5000 Lux ⁽¹⁾
PROTECTION DEGREE Amplifiers	IP 50
PROTECTION DEGREE Projectors	IP 65
CONNECTIONS	with clamps
HOUSING MATERIAL Amplifiers	ABS
HOUSING MATERIAL Projectors	Body - Lenses: methacrylate
WEIGHT (Approximately)	430 g

⁽¹⁾ Determined with halogen tungsten lamp 3000 °K.

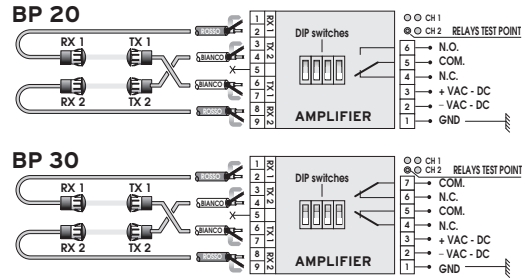
IMPORTANT WARNING

The thru beam photoelectric sensor can be used as a sensor to detect the presence of an obstacle if the sensing beam gets interrupted. In no case this device can substituted the obligatory safety devices that must be applied on all dangerous equipments.

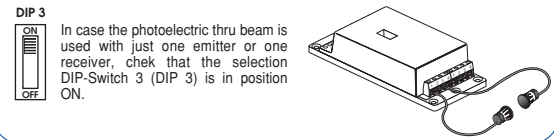
CHARACTERISTICS CURVE



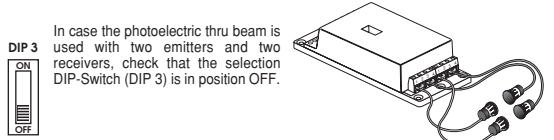
WIRING DIAGRAMS



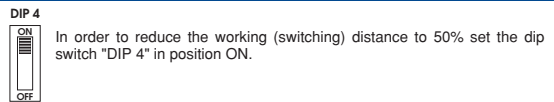
One beam selection



DOUBLE BEAM SELECTION

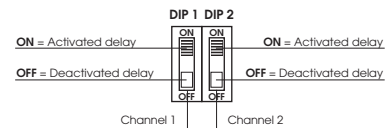


REDUCED WORKING DISTANCE (BP20 MOD.)

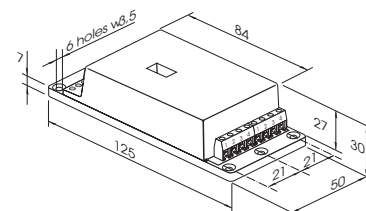


DELAY AT SENSOR DEACTIVATION

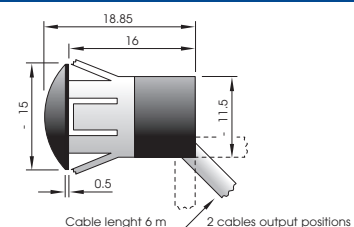
Operating on the suitable DIP-Switches it is possible to select on each channel a delay to the sensor deactivation, it permits to keep the sensor excited for about 1 second once the obstacle has passed the active area. Regulating the DIP-Switches (DIP 1 and DIP 2) in position ON, the delay is activated.



AMPLIFIER DIMENSIONS (mm)



PROJECTOR DIMENSIONS (mm)



PHOTOELECTRIC SENSORS



THRU BEAM

12÷30 V DC - NPN OR PNP OUTPUT

- 18mm tubular in metal housing
- Operation LED aids installation
- Cable or M12 quick connect models
- Emitter with test input

18 Series



IDENTIFICATION CODE

18 **22** **K** **T** * **EX** ⁽²⁾

SERIES 18

NPN NO output

22

NPN NC output

23

PNP NO output

24

PNP NC output

25

Emitter

21

CONNECTOR OUTPUT M12

TEST INPUT

ATEX GROUP II CAT. 3D

* Option valid only for code 1821

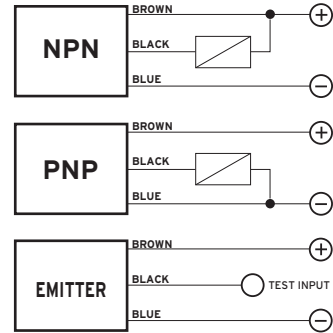
AVAILABLE	RECEIVER	EMITTER
NOMINAL SWITCHING DISTANCE (Sn)	25 m	
TOLERANCE	+10/-10 %Sn	
HYSTERESIS	10%	
EMISSION	-	Infrared (875 nm)
NOMINAL VOLTAGE	12 ÷ 30VDC (-15 /+10%)	
RESIDUAL RIPPLE	10%	
MAX. OUTPUT CURRENT	200 mA	-
ABSORPTION AT 30 VDC	15 mA	
VOLTAGE DROP (Sensor ON)	1.5V (I = 200 mA)	-
OPERATION LED	Yellow	
SWITCHING FREQUENCY	200 Hz	
RESPONSE TIME	2.5 ms	
START UP DELAY	100 ms	
SHORT CIRCUIT PROTECTION	Present (self-resetting)	
ELECTRIC PROTECTIONS	Against polarity reversal - inductive loads	
TEMPERATURE LIMITS	-10 ÷ +60 °C	
LIGHT IMMUNITY	> 10000 Lux ⁽¹⁾	
PROTECTION DEGREE	IP 67 (IP 65 for models with sensitivity adjustment)	
CABLE LENGTH	2 m	
CABLE SECTION	3 x 0.25 mm ²	3/2 x 0.25 mm ²
HOUSING MATERIAL	Housing: nickel plated brass - Lenses: methacrylate	
WEIGHT - cable output - (connector output)	- 110 g - (55 g)	

⁽¹⁾ Determined with halogen tungsten lamp 3000 °K.

⁽²⁾ Device marking II 3D IP67 T6X.

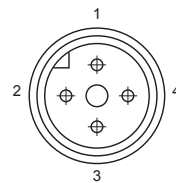
Note: for a proper use see norms at pages 18, 19, 20, 21 and 22.

WIRING DIAGRAMS



CONNECTION WITH CONNECTOR M12 (K)

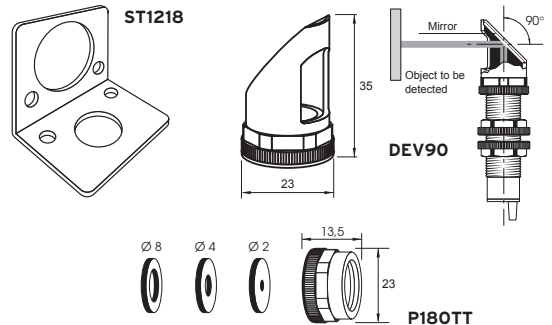
View of quadripole male connector.



CONTACTS CONFIGURATION

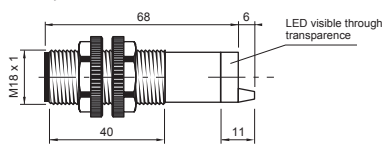
Available	Contacts numbers			
	1	2	3	4
(NO o NC)	+	-	-	NO/NC
Emitter	+	-	-	TEST

ACCESSORIES

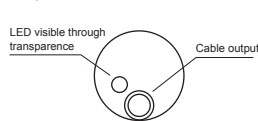


DIMENSIONS (mm)

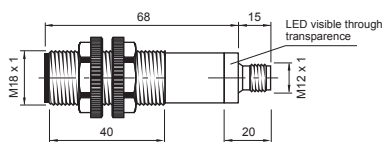
Configuration with cable



Configuration with cable - Back view



Configuration with connector K

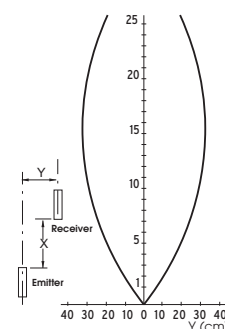


Configuration with connector K Back view



CHARACTERISTIC CURVES

THRU BEAM
Distance X (m)





PHOTOELECTRIC SENSORS

THRU BEAM

24÷230 V AC - TRIAC NO AND NC OUTPUT

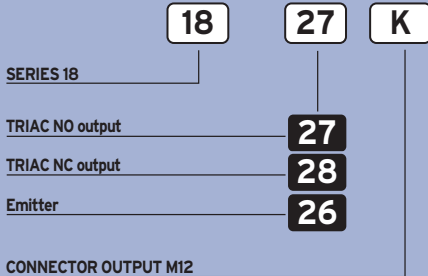
- 18mm tubular in metal housing
- Leakage <1.5 mA @ 220 V AC
- Cable or M12 quick connect models



18 Series



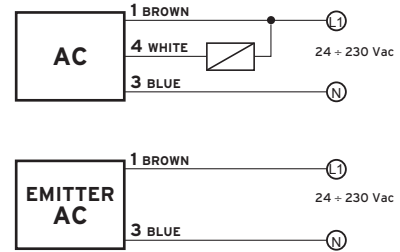
IDENTIFICATION CODE



AVAILABLE	RECEIVER	EMITTER
NOMINAL SWITCHING DISTANCE (Sn)	5 m	
TOLERANCE	+10/-10 %Sn	
HYSTERESIS	10%	
EMISSION	-	Infrared (875 nm)
NOMINAL VOLTAGE	24 ÷ 230VAC (-15 /+10%)	
MAINS FREQUENCY	50 ÷ 60 Hz	
MAX. OUTPUT CURRENT	150 mA	-
LEAKAGE CURRENT	1.5mA (at 220VAC)	-
ABSORPTION	1 W	-
VOLTAGE DROP (Sensor ON)	< 2.5 V	
OPERATION LED	Yellow	
SWITCHING FREQUENCY	10 Hz	
RESPONSE TIME	50 ms	
START UP DELAY	300 ms	
ELECTRIC PROTECTIONS	Against inductive loads	
TEMPERATURE LIMITS	-10 ÷ +60 °C	
LIGHT IMMUNITY	2000 Lux ⁽¹⁾	
PROTECTION DEGREE	IP 67 (IP 65 for models with sensitivity adjustment)	
CABLE LENGTH	2 m	
CABLE SECTION	3 x 0.35 mm ²	2 x 0.25 mm ²
HOUSING MATERIAL	Housing: nickel-plated brass - Lenses: methacrylate	
WEIGHT - cable output -	120 g	

⁽¹⁾ Determined with halogen tungsten lamp 3000 °K.
Note: for a proper use see norms at pages 18, 19, 20, 21 and 22.

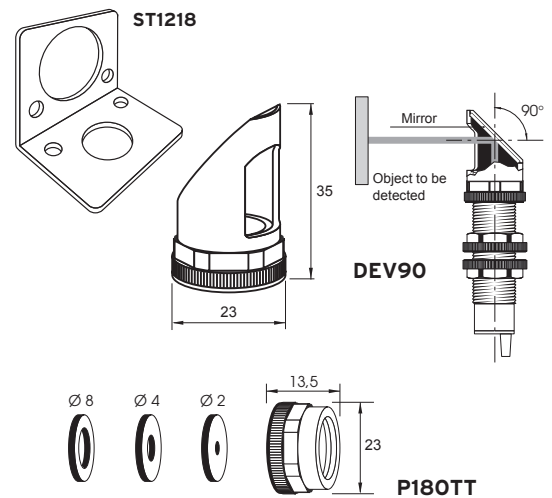
WIRING DIAGRAMS



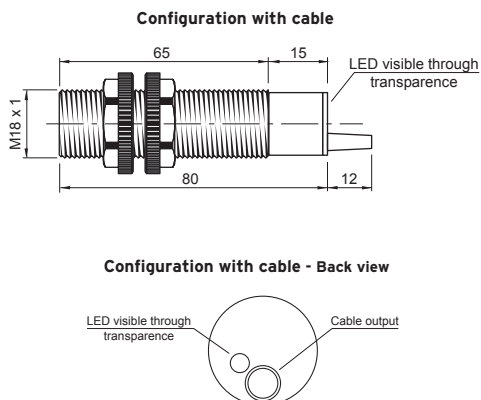
WARNING: Short circuit in the output is not possible. Wrong supply cables connections can irreparably damage the detector. Therefore sensors whose output status is short-circuited will not be substituted under warranty.

CONNECTIONS IN PARALLEL: In parallel connections with multiple outputs, the maximum leakage current (<1,5 mA at 220 VAC) referring to the load and the supply should be taken into account when calculating the max. quantity of connectable sensors. It is important in this connection that the sensors are connected at the same phase.

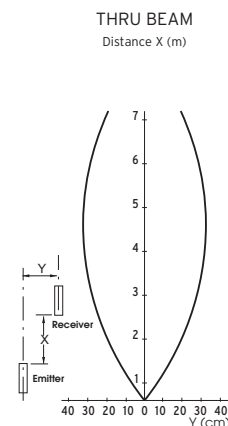
ACCESSORIES

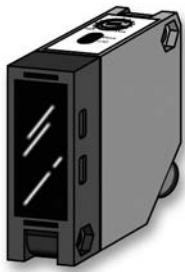


DIMENSIONS (mm)



CHARACTERISTIC CURVES





PHOTOELECTRIC SENSORS



RETRO REFLECTIVE 12÷30 V DC PROGRAMMABLE OUTPUT

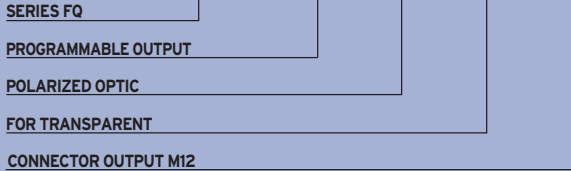
- Square housing
- Compact size, output and stability indicators
- Cost effective
- Cable or M12 quick connect models
- Fast response time: 2.5 ms / 200 Hz
- Version for transparent

FQ Series



IDENTIFICATION CODE

FQ **02** **P** **T*** **K**



* Available only with "P" option.

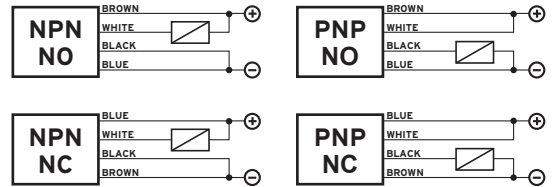
AVAILABLE	POLARIZED	POLAR. FOR TRANSPARENT	STANDARD
NOMINAL SWITCHING DISTANCE (Sn)	6 m ⁽¹⁾	0,05 ÷ 2m ⁽¹⁾	13 m ⁽¹⁾
TOLERANCE	+10/-10 %Sn		
HYSTERESIS	10%		
EMISSION	Red (660 nm)	Infrared (875 nm)	
NOMINAL VOLTAGE	12 ÷ 30VDC (-15 /+10%)		
RESIDUAL RIPPLE	10%		
OUTPUT	NPN or PNP (programmable)		
CONTACT	NO or NC (programmable)		
MAX. OUTPUT CURRENT	200 mA		
ABSORPTION AT 30 VDC	40 mA		
VOLTAGE DROP (Sensor ON)	1.8 V (I = 100 mA)		
YELLOW LED	Output indicator		
GREEN LED	Supply indicator		
SENSITIVITY ADJUSTMENT	Trimmer 1 turn		
SWITCHING FREQUENCY	200 Hz		
RESPONSE TIME	2.5 ms		
START UP DELAY	100 ms		
SHORT CIRCUIT PROTECTION	Present (self-resetting)		
ELECTRIC PROTECTIONS	Against polarity reversal - inductive loads		
TEMPERATURE LIMITS	-10 ÷ +60 °C		
LIGHT IMMUNITY	> 10.000 Lux ⁽²⁾		
PROTECTION DEGREE	IP 65		
CABLE LENGTH	2 m		
CABLE SECTION	4 x 0.25 mm ²		
HOUSING MATERIAL	Housing: ABS - Lenses: methacrylate		
WEIGHT - cable output - (connector output)	- 160 g - (120 g)		

⁽¹⁾ Determined with CTO4S reflector.

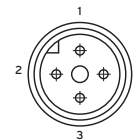
⁽²⁾ Determined with halogen tungsten lamp 3000 °K.

Note: for a proper use see norms at pages 18, 19, 20, 21 and 22.

WIRING DIAGRAMS



CONNECTION WITH CONNECTOR M12 (K)



CONTACTS CONFIGURATION

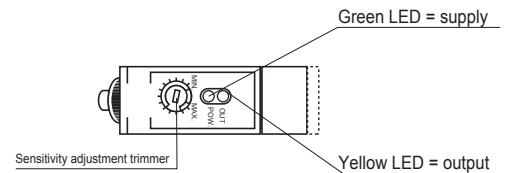
Output	Contacts numbers			
	1	2	3	4
NPN NO	+	NO	-	-
NPN NC	-	NC	+	-
PNP NO	+	+	-	NO
PNP NC	-	+	+	NC
Emitter	+	-	-	-

View of quadripole male connector.

Note: Photoelectric sensor not suitable for use with 90° connectors.

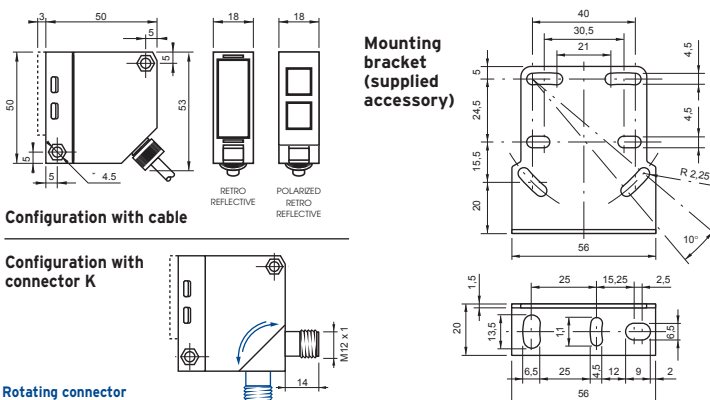
SENSITIVITY ADJUSTMENT

- 1) SENSITIVITY INCREASE**
Screw the trimmer towards right towards position "+"
- 2) SENSITIVITY DECREASE**
Screw the trimmer towards left towards position "-"

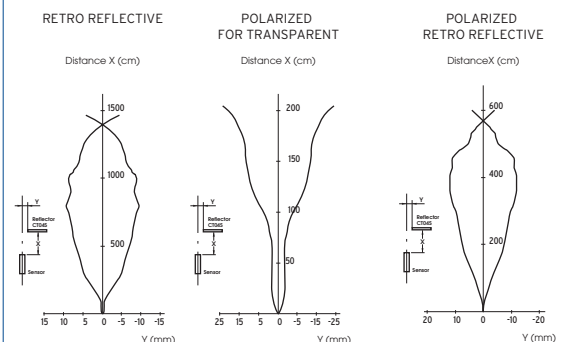


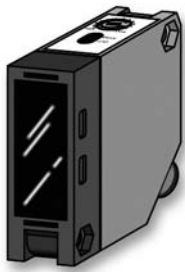
Note: the trimmer just needs one turn.

DIMENSIONS (mm)



CHARACTERISTIC CURVES





PHOTOELECTRIC SENSORS



RETRO REFLECTIVE

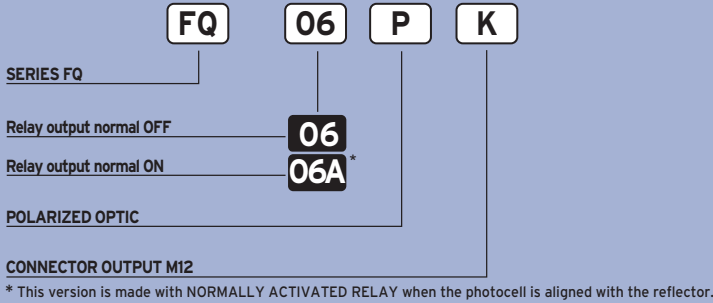
14÷230 V AC/DC PROGRAMMABLE OUTPUT

- Square housing
- Wide input voltage
- 3A relay SPDT
- Cable or M12 quick connect models
- Output and Supply indicators

FQ Series



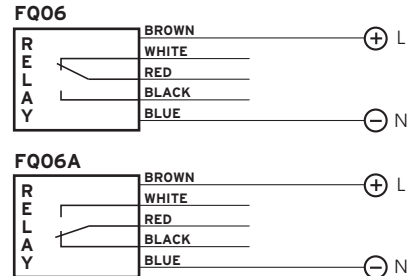
IDENTIFICATION CODE



AVAILABLE	POLARIZED	STANDARD
NOMINAL SWITCHING DISTANCE (Sn)	6 m ⁽¹⁾	13 m ⁽¹⁾
TOLERANCE	+10/-10 %Sn	
HYSTERESIS	10%	
EMISSION	Red (660 nm)	Infrared (875 nm)
NOMINAL VOLTAGE	14 ÷ 230V AC - DC (-15 /+10%)	
MAINS FREQUENCY	50 ÷ 60 Hz	
OUTPUT	Relay (10 x 10 ⁶ ops. min.)	
MAX. OUTPUT CURRENT	3A 30 VAC - 1A 220 VAC (90W, 360 VA)	
ABSORPTION	2.5 VA	
YELLOW LED	Output indicator	
GREEN LED	Supply indicator	
SENSITIVITY ADJUSTMENT	Trimmer 1 turn	
SWITCHING FREQUENCY	10 Hz	
RESPONSE TIME	50 ms	
START UP DELAY	300 ms	
TEMPERATURE LIMITS	-10 ÷ +60 °C	
LIGHT IMMUNITY	> 10.000 Lux ⁽²⁾	
PROTECTION DEGREE	IP 65	
CABLE LENGTH	2 m	
CABLE SECTION	5 x 0.30 mm ²	
HOUSING MATERIAL	Housing: ABS - Lenses: methacrylate	
WEIGHT - cable output - (connector output)	- 180 g - (125 g)	

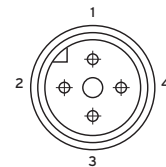
⁽¹⁾ Determined with CTO4S reflector.
⁽²⁾ Determined with halogen tungsten lamp 3000 °K.
 Note: for a proper use see norms at pages 18, 19, 20, 21 and 22.

WIRING DIAGRAMS



Note: in case of inductive loads it is necessary to connect one diode in antiparallel at the edges of the load.

CONNECTION WITH CONNECTOR M12 (K)



View of quadripole male connector.

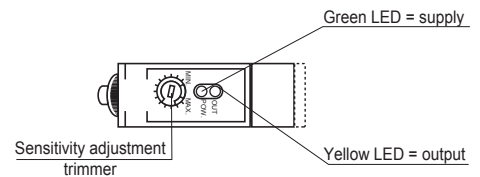
CONTACTS CONFIGURATION

Output	Contacts numbers			
	1	2	3	4
Relay	L	COM	N	NO
Wire colors	brown	white	blue	black

Note: Photoelectric sensor not suitable for use with 90° connectors.

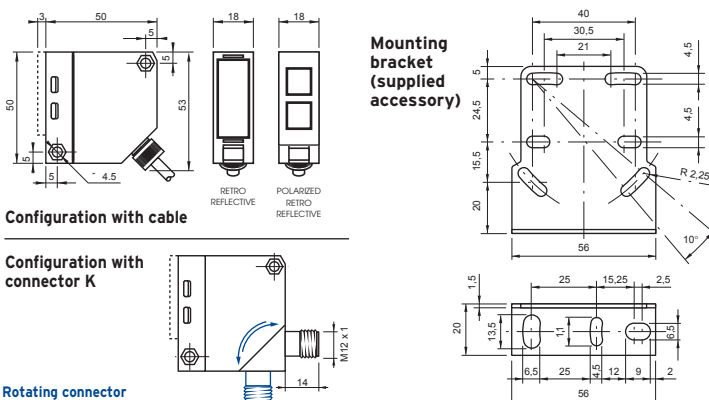
SENSITIVITY ADJUSTMENT

- 1) SENSITIVITY INCREASE**
Screw the trimmer towards right towards position "+"
- 2) SENSITIVITY DECREASE**
Screw the trimmer towards left towards position "-"

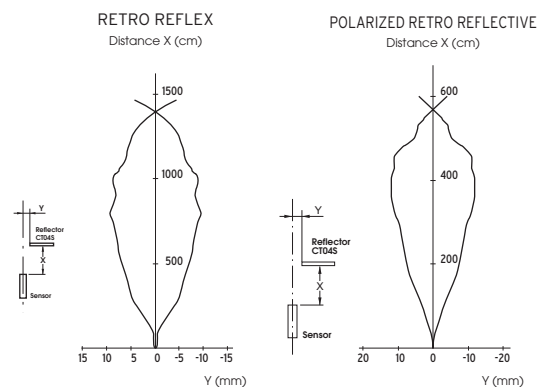


Note: the trimmer just needs one turn.

DIMENSIONS (mm)



CHARACTERISTIC CURVES





PHOTOELECTRIC SENSORS



RETRO REFLECTIVE

12÷30 V DC WITH PROGRAMMABLE OUTPUT

- Rectangular housing
- Multi-function timer
- ON/OFF delay
- One shot-four functions
- NPN or PNP programmable outputs
- Conduit wiring terminal block

FW Series



IDENTIFICATION CODE

FW **03** **P** **T** **K**

SERIES FW

NPN PNP OUTPUT

POLARIZED OPTIC

TIME DELAY 1 ÷ 7 SEC.

CONNECTOR OUTPUT M12

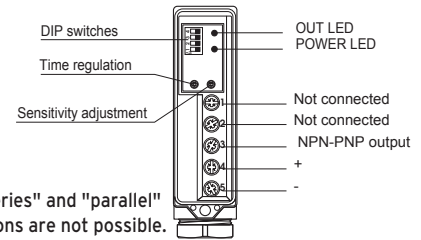
AVAILABLE	POLARIZED	STANDARD
NOMINAL SWITCHING DISTANCE (Sn)	9 m ⁽¹⁾	15 m ⁽¹⁾
TOLERANCE	+10/-10 %Sn	
HYSTERESIS	10%	
EMISSION	Red (660 nm)	Infrared (875 nm)
NOMINAL VOLTAGE	12 ÷ 30VDC (-15 /+10%)	
RESIDUAL RIPPLE	10%	
OUTPUT	NPN or PNP (programmable)	
MAX OUTPUT CURRENT	200 mA	
ABSORPTION	40 mA	
VOLTAGE DECREASE	2.5 VDC	
YELLOW LED	Light on indicator	
GREEN LED	Supply indicator	
SENSITIVITY ADJUSTEMENT	Trimmer 1 turn	
TIME REGULATION	0.1 ÷ 7 s ± 2 s (only models with timer)	
SWITCHING FREQUENCY	200 Hz	
RESPONSE TIME	2.5 ms	
START UP DELAY	300 ms	
PROTECTION AGAINTS SHORT-CIRCUIT	Present (self-resetting)	
TEMPERATURE LIMITS	-10° + 60 °C	
LIGHT IMMUNITY	10.000 Lux ⁽²⁾	
PROTECTION DEGREE	IP 67	
CONNECTIONS	Screw or M12 conn.	
CABLE GUIDE	PG 13.5	
HOUSING MATERIAL	Housing: ABS - Lenses: methacrylate	
WEIGHT (Approximately)	110 g	

⁽¹⁾ Determined with CTO4S reflector.

⁽²⁾ Determined with halogen tungsten lamp 3000 °K.

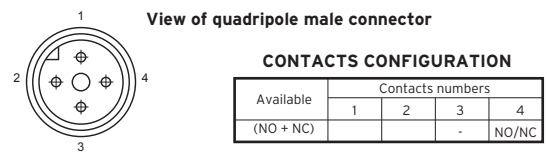
Note: for a proper use see norms at pages 18, 19, 20, 21 and 22.

WIRING DIAGRAMS



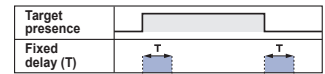
Note: "series" and "parallel" connections are not possible.

CONNECTION WITH CONNECTOR M12 (K)



Note: Photoelectric sensor not suitable for use with 90° connectors.

TIMING DIAGRAMS



ALL MODELS

NO.	FUNCTION	DIP SWITCHES	OUTPUT DIAGRAM
1	Muting	ON	PNP = NO
		OFF	NPN = NO

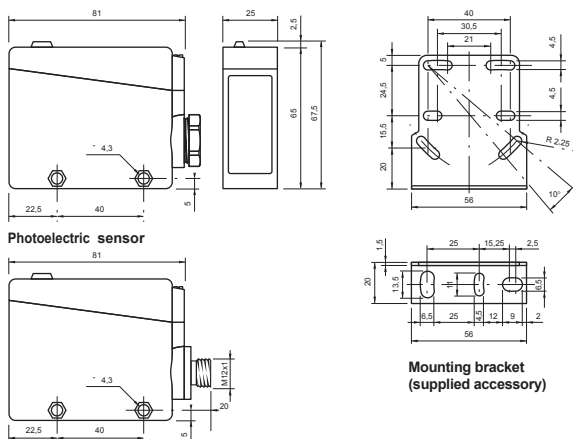
MODELS WITHOUT TIMER

1	Normally ON PNP	ON	PNP = NC	NPN = NO
		OFF	PNP = NO	NPN = NC
2	Normally ON NPN	ON	PNP = NO	NPN = NC
		OFF	PNP = NC	NPN = NO

MODELS WITH TIMER

1	Delay on operate	ON	PNP = NC	NPN = NO
		OFF	PNP = NO	NPN = NC
2	Delay on release	ON	PNP = NC	NPN = NO
		OFF	PNP = NO	NPN = NC
3	One shot leading edge	ON	PNP = NC	NPN = NO
		OFF	PNP = NO	NPN = NC
4	One shot trailing edge	ON	PNP = NC	NPN = NO
		OFF	PNP = NO	NPN = NC

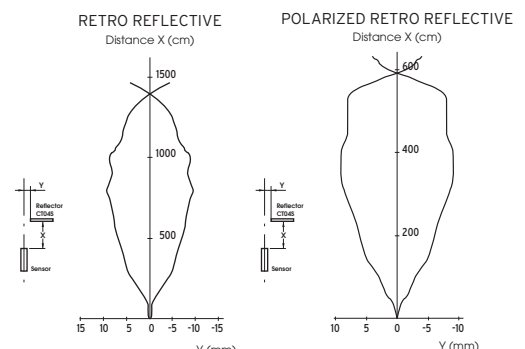
DIMENSIONS (mm)



Photoelectric sensor

Mounting bracket (supplied accessory)

CHARACTERISTIC CURVES





PHOTOELECTRIC SENSORS



RETRO REFLECTIVE

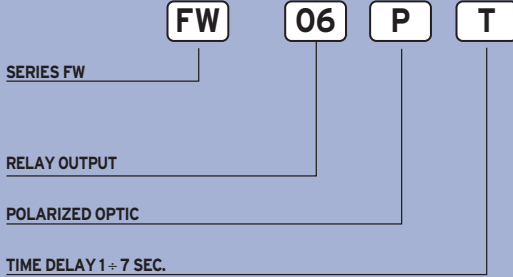
14÷230 V AC/DC WITH TIMER RELAY OUTPUT

- Rectangular housing
- Wide range Power Supply
- Multi-function timer
- ON/OFF delay
- One shot-four functions
- Conduit wiring terminal block

FW Series



IDENTIFICATION CODE



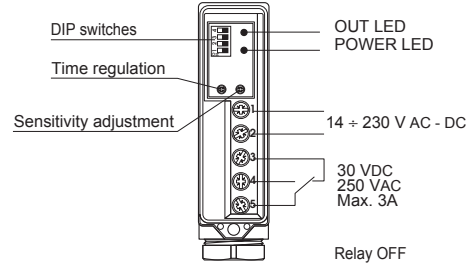
AVAILABLE	POLARIZED	STANDARD
NOMINAL SWITCHING DISTANCE (Sn)	9 m ⁽¹⁾	15 m ⁽¹⁾
TOLERANCE	+10/-10 %Sn	
HYSTERESIS	10%	
EMISSION	Red (660 nm)	Infrared (875 nm)
NOMINAL VOLTAGE	14 ÷ 230 VAC - DC (-15 /+10%)	
NET FREQUENCY	45 ÷ 60 Hz	
OUTPUT	Relay (40 x 10 ⁶ mec. op. -5 x 10 ⁶ elect. op.)	
MAX OUTPUT CURRENT	3A 250VAC - 3A 30VDC	
ABSORPTION	2W (2.5 VA)	
YELLOW LED	Light on indicator	
GREEN LED	Supply indicator	
SENSITIVITY ADJUSTMENT	Trimmer 1 turn	
TIME REGULATION	0.1 ÷ 7 s ± 2 s (only models with timer)	
SWITCHING FREQUENCY	10 Hz	
RESPONSE TIME	50 ms	
START UP DELAY	300 ms	
TEMPERATURE LIMITS	-10 ÷ +60 °C	
LIGHT IMMUNITY	> 10.000 Lux ⁽²⁾	
PROTECTION DEGREE	IP 67	
CONNECTIONS	Screw	
CABLE GUIDE	PG 13.5	
HOUSING MATERIAL	Housing: ABS - Lenses: methacrylate	
WEIGHT (Approximately)	110 g	

⁽¹⁾ Determined with CTO4S reflector.

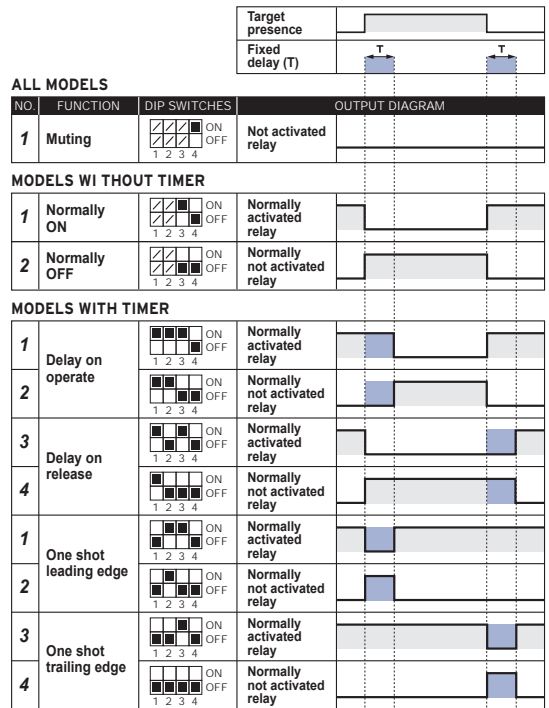
⁽²⁾ Determined with halogen tungsten lamp 3000 °K.

Note: for a proper use see norms at pages 18, 19, 20, 21 and 22.

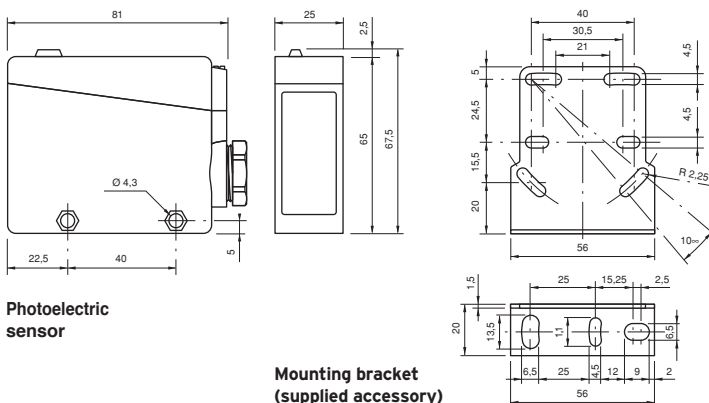
WIRING DIAGRAMS



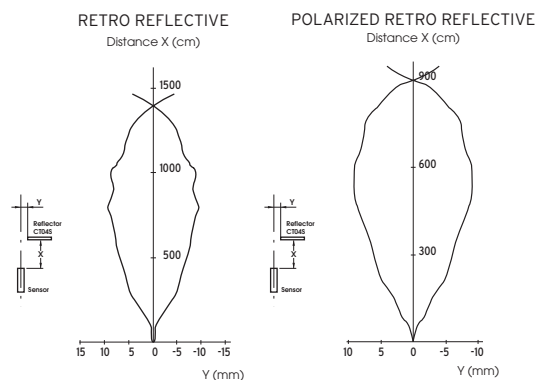
TIMING DIAGRAMS



DIMENSIONS (mm)



CHARACTERISTIC CURVES



MAGNETIC SENSORS

Ø 12 REED CONTACT



SM Series



- Metal and plastic housing
- 2 ms delay on activation
- 2 m integrated cable
- Choice of magnet targets

IDENTIFICATION CODE

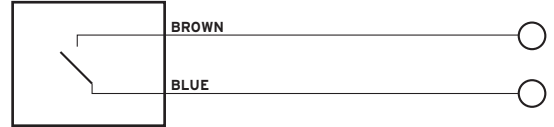
SM	07
SERIES SM	
NO - Length 40mm	07
NO + NC - Length 42mm	08 ⁽⁴⁾
POWER NO - Length 30mm	09 ⁽²⁾
POWER NO - Length 70mm	13 ⁽¹⁾
POWER NO+NC - Length 70mm	14 ⁽³⁾
NO - Length 100mm - plastic	19 ⁽²⁾
POWER NO+NC - Length 100mm - plastic	20 ⁽⁵⁾
POWER NO - Length 100mm - plastic	21 ⁽¹⁾
BISTABLE - Length 100mm - plastic	22 ⁽³⁾
NO+NC - Length 100mm - plastic	23 ⁽⁶⁾

MAX. VOLTAGE (SM07)	230 Vpeak
MAX. CURRENT (SM07)	0.04 A
POWER (SM07)	10 VA
SWITCHING FREQUENCY	200 Hz
DELAY ON ACTIVATION	2 ms
REPEATABILITY	± 0.3 mm
TEMPERATURE LIMITS	-20 ÷ +60°C
PROTECTION DEGREE	IP 67
CABLE LENGTH	2m
CABLE SECTION	SM07/SM09/SM13=2x0.50mm ² - SM08/SM14=3x0.35mm ² - SM19/SM21/SM22=2x0.75mm ²
HOUSING MATERIAL	Nickel-plated brass

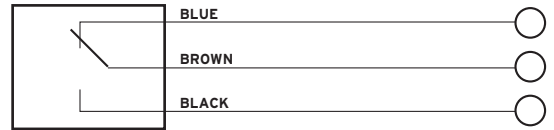
- (1) Pw = 100W : I max = 3A (V = 33V) - Vpeak = 250V (I = 0.4A)
 (2) Pw = 50W : I max = 1A (V = 50V) - Vpeak = 250V (I = 0.2A)
 (3) Pw = 100W : I max = 3A (V = 33V) - Vpeak = 250V (I = 0.4A)
 (4) Pw = 3W : I max = 0.25A (V = 12V) - Vpeak = 100V (I = 0.03A)
 (5) Pw = 60W : I max = 3A (V = 20V) - Vpeak = 250V (I = 0.24A)
 (6) Pw = 10W : I max = 0.5A (V = 20V) - Vpeak = 175V (I = 0.06A)

WIRING DIAGRAMS

NO CONTACT

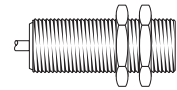


NO + NC CONTACT



REED CONTACT SENSOR MAGNET SWITCHING DISTANCE (mm)

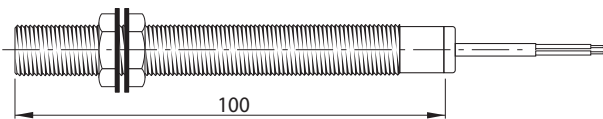
DIAMETER 12
Distance Hysteresis



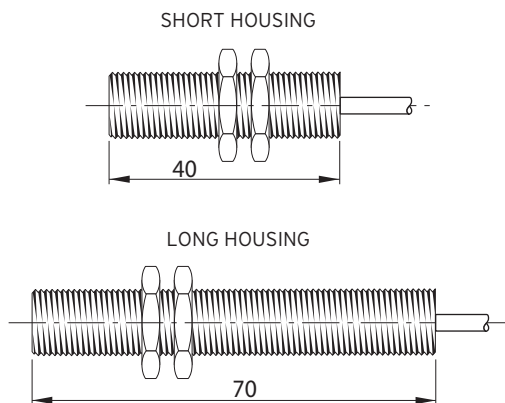
24 12 (Power)	5 7 (Power)	MG01
22 10 (Power)	5 6 (Power)	MG02
6 0 (Power)	2.5 0 (Power)	MG03
22 22 (Power)	9 9 (Power)	MG04
20 20 (Power)	9 9 (Power)	MG05

WARNING: The data specified in this table have an approximate value because they depend on the magnet position, on the material on which it is applied (ferromagnetic or not) and because they are related to the magnet during the frontal approach. Reed contact sensors can be also activated laterally considering that switching distances are always influenced by the magnet position and orientation besides the material on which it is applied (ferromagnetic or not).

PLASTIC HOUSING MODELS DIMENSIONS (mm)



METAL HOUSING MODELS DIMENSIONS (m)



MAGNETS DIMENSIONS (mm)

